

Public Testimony Sign-Up Sheet ^{"OVER}


Agenda Item D-2(a) BSAI CRAB fishing

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NOTE to persons providing oral or written testimony to the Council: Section 307(1)(I) of the Magnuson-Stevens Fishery Conservation and Management Act prohibits any person "to knowingly and willfully submit to a Council, the Secretary, or the Governor of a State false information (including, but not limited to, false information regarding the capacity and extent to which a United State fish processor, on an annual basis, will process a portion of the optimum yield of a fishery that will be harvested by fishing vessels of the United States) regarding any matter that the Council, Secretary, or Governor is considering in the course of carrying out this Act.

MEMORANDUM

TO: Council, SSC and AP Members

FROM:  Chris Oliver
Executive Director

ESTIMATED TIME 6 HOURS (all D-2 items)
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DATE: January 30, 2007

SUBJECT: BSAI Crab

ACTION REQUIRED

- (a) Initial review of BSAI crab overfishing definitions analysis

BACKGROUND

An Environmental Assessment (EA) has been prepared which evaluates proposed changes to the current overfishing definitions for BSAI crab stocks. The proposed action is to establish a set of overfishing levels (OFLs) that provide objective and measurable criteria for identifying when a BSAI crab fishery is overfished or when overfishing is occurring, in compliance with the Magnuson-Stevens Act. The BSAI crab FMP establishes a State/Federal cooperative management regime that defers crab fisheries management to the State of Alaska with Federal oversight. The Magnuson-Stevens Act requires that FMPs specify objective and measurable criteria for identifying when the fishery is overfished (with an analysis of how the criteria were determined and the relationship of the criteria to the reproductive potential of stock). The OFLs are a Category 1 measure in the FMP, and as such revisions to the OFLs require an FMP amendment.

Determinations of total allowable catches (TACs) and guideline harvest levels (GHLs) are a Category 2 management measure and are deferred to the State following the criteria in the FMP. Catch levels established by the State must be in compliance with OFLs established in the FMP to prevent overfishing. NMFS annually determines if catch levels exceed OFLs or if stocks are overfished or are approaching an overfished status. If either of these occurs, NMFS notifies the North Pacific Fishery Management Council (Council) and the Council has one year to develop an FMP amendment to end overfishing and the rebuild the stock.

The purpose of the proposed action is to establish status determination criteria in compliance with the Magnuson-Stevens Act and the national standard guidelines. The current OFLs were implemented under Amendment 7 to the FMP in 1998. In the environmental assessment (EA) for that amendment, the Crab Plan Team stated its intent to review the definitions after 5 years or when environmental conditions have changed such that revising the definitions may be necessary.

Three alternatives are analyzed in the document:

Alternative 1: (Status Quo) Amendment 7 provided fixed values in the FMP for the status determination criteria: minimum stock size threshold (MSST), maximum sustainable yield (MSY), optimum yield (OY), and maximum fishing mortality threshold (MFMT) for the BSAI king and Tanner crab stocks.

Alternative 2: Use a tier system and OFL setting process to annually set OFLs for each crab stock. The FMP amendment would specify the tier system and process by which stocks are assigned to tier levels, the OFLs are set, and the timing of the annual review process by the Crab Plan Team, Scientific and Statistical Committee, and Council. In June, the Council would adopt the final tier levels and OFLs for each stock. OFLs would be determined based upon model estimates prior to the summer survey because the Council would adopt the OFLs before the survey.

Alternative 3: Use a tier system and OFL setting process to annually set OFLs for each crab stock. The FMP amendment would specify the tier system and process by which stocks are assigned to tier levels, the OFLs are set, and the timing of the annual review process by the Crab Plan Team, Scientific and Statistical Committee, and Council. OFLs would be calculated after the survey data are available in late August. The Council would review the status of the stocks, the OFLs, and the TACs in October or December.

The analysis reviews the impacts on crab stocks, groundfish incidental catch limits for crab species, seabirds, marine mammals, threatened and endangered species and the economic impacts on participants in the crab fisheries. The executive summary of the EA is attached as **Item D-2(a)(1)**. The full analysis was mailed to you on January 18th. The Crab Plan Team held a special meeting in on November 8, 2006 to provide comments to the analysts on the draft EA. The Crab Plan Team minutes from this meeting are attached as **Item D-2(a)(2)**. The EA has been revised substantially since that meeting. This analysis is scheduled for initial review at this meeting.

EXECUTIVE SUMMARY

The king and Tanner crab fisheries in the Exclusive Economic Zone (3 to 200 miles offshore) of the Bering Sea and Aleutian Islands (BSAI) off Alaska are managed under the Fishery Management Plan for Bering Sea/Aleutian Islands King and Tanner Crabs (FMP). The FMP establishes a State/Federal cooperative management regime that defers crab fisheries management to the State of Alaska with Federal oversight. The FMP defers much of the management of the BSAI crab fisheries to the State of Alaska using the following three categories of management measures:

1. Those that are fixed in the FMP and require an FMP amendment to change;
2. Those that are framework-type measures that the State can change following criteria set out in the FMP; and
3. Those measures that are neither rigidly specified nor frameworked in the FMP and are at the discretion of the State.

The proposed action is to establish a set of overfishing levels (OFLs) that provide objective and measurable criteria for identifying when a BSAI crab fishery is overfished or when overfishing is occurring, in compliance with the Magnuson-Stevens Act. The Magnuson-Stevens Act, in §303(a)(10), requires that FMPs specify objective and measurable criteria for identifying when the fishery is overfished (with an analysis of how the criteria were determined and the relationship of the criteria to the reproductive potential of stock). The OFLs are a Category 1 measure in the FMP. As such, revisions to the OFLs require an FMP amendment.

Determinations of total allowable catches (TACs) and guideline harvest levels (GHLs) are a Category 2 management measure and are deferred to the State following the criteria in the FMP. Catch levels established by the State must be in compliance with OFLs established in the FMP to prevent overfishing. As described in Chapter 2, NMFS annually determines if catch levels exceed OFLs or if stocks are overfished or are approaching an overfished status. If either of these occurs, NMFS notifies the North Pacific Fishery Management Council (Council) and the Council has one year to develop an FMP amendment to end overfishing and the rebuild the stock.

Purpose and Need

Chapter 1 describes the proposed action and its purpose and need. The purpose of the proposed action is to establish status determination criteria in compliance with the Magnuson-Stevens Act and the national standard guidelines. The current OFLs were implemented under Amendment 7 to the FMP in 1998. In the environmental assessment (EA) for that amendment, the Crab Plan Team stated its intent to review the definitions after 5 years or when environmental conditions have changed such that revising the definitions may be necessary.

The need for the proposed action is explained in the Crab Plan Team's problem statement:

New overfishing definitions are necessary to reflect current scientific information and accomplish the following:

- *Provide an FMP framework for definition values to facilitate use of the best available scientific information as it evolves.*
- *Provide a new tier system that accommodates varying levels of uncertainty of information and takes advantage of alternative biological reference points.*
- *Define the status determination criteria and their application to the appropriate component of the population.*

Alternatives

Chapter 2 describes and compares three alternatives. The alternatives analyzed in this EA are consistent with the Magnuson-Stevens Act and the national standard guidelines. The three alternatives are summarized as follows:

Alternative 1: (Status Quo) Amendment 7 provided fixed values in the FMP for the status determination criteria: minimum stock size threshold (MSST), maximum sustainable yield (MSY), optimum yield (OY), and maximum fishing mortality threshold (MFMT) for the BSAI king and Tanner crab stocks.

Alternative 2: Use tier system and OFL setting process to annually set OFLs for each crab stock. The FMP amendment would specify the tier system and process by which stocks are assigned to tier levels, the OFLs are set, and the timing of the annual review process by the Crab Plan Team, Scientific and Statistical Committee, and Council. In June, the Council would adopt the final tier levels and OFLs for each stock. OFLs would be determined based upon model estimates prior to the summer survey because the Council would adopt the OFLs before the survey.

Alternative 3: Use tier system and OFL setting process to annually set OFLs for each crab stock. The FMP amendment would specify the tier system and process by which stocks are assigned to tier levels, the OFLs are set, and the timing of the annual review process by the Crab Plan Team, Scientific and Statistical Committee, and Council. OFLs would be calculated after the survey data are available in late August. The Council would review the status of the stocks, the OFLs, and the TACs in October or December.

Chapter 2 also provides a comparison of the two main components of the alternatives: (1) the status determination criteria, and (2) the timing of the OFL determinations. Alternatives 2 and 3 contain the same tier system for establishing the status determination criteria. Alternatives 1 and 3 contain a similar process for the timing of the annual OFL determinations.

Status determination criteria

The status determination criteria provided in Alternative 1 are fixed in the FMP and reflect the understanding of crab biology and abundance at the time that Amendment 7 was adopted. Alternatives 2 and 3 were designed to incorporate this new scientific information and provide a mechanism to continually improve the status determination criteria as new information becomes available. Alternatives 2 and 3 use a tier system that accommodates varying levels of uncertainty of information and takes advantage of alternative biological reference points in setting the OFLs. The OFLs established under these alternatives would be specified for the appropriate component of the population.

Table Ex-1 provides a comparison of the biological reference points provided in the alternatives. Additional information on the biological reference points for specific species is contained in the Chapter for that species.

Table Ex-1 Comparison of biological reference points used in the alternatives.

Biological Reference Points	Alternative 1	Alternatives 2 and 3
Maximum Sustainable Yield (MSY) or MSY proxy	average of the annually computed sustained yield over the 15-year period, 1983-1997 (total mature biomass * natural mortality)	Tiers 1 and 2 (MSY) Tiers 3 and 4 (MSY proxy)
MSY Biomass (B_{MSY})	average annual estimated total mature biomass for the 15-year period, 1983-1997	Mature male biomass at MSY level
Minimum stock size threshold (MSST)	$\frac{1}{2} B_{MSY}$	$\frac{1}{2} B_{MSY}$
Maximum fishing mortality threshold (MFMT)	MSY control rule applied to the current total mature biomass	OFL fishing rate (F_{OFL}) calculated by applying tier system
MSY control rule	Natural mortality	F_{OFL} control rule
Natural mortality (M)	0.2 for all species of king crab 0.3 for all <i>Chionoecetes</i> species	0.18 for all species of king crab (default value) 0.23 for male and 0.29 for female <i>Chionoecetes</i> species (default values)
Sustainable yield (SY)	Total mature biomass * M	N/A
Optimum yield (OY)	OY range 0 - MSY	OY range 0 - MSY or MSY proxy

Timing of OFL determination

The timing of the OFL determinations is important because it determines two key factors: (1) who the decision-maker can be, and (2) what information is used in the OFL determinations. Timing also impacts the level and extent of peer review and information shared with the public. Alternatives 2 and 3 establish different processes for tier and OFL setting and review. This review process includes the SSC and the Council review for determining appropriate tier levels and OFLs on an annual basis. The OFL setting and review process establishes (1) the placement of stocks into tiers; (2) the information utilized in the projection models for OFL determination; (3) the setting of the OFLs; and (4) the determinations of the status of the stocks relative to the OFLs.

The timing of the OFL determinations similarly affect the fisheries for the surveyed stocks, Bristol Bay red king crab, snow crab, Tanner crab, Pribilof Islands king crab, and Saint Matthew blue king crab. Stocks not subject to the NMFS annual eastern Bering Sea trawl survey are not impacted by the timing of the OFL determinations.

Summary of the environmental consequences of the alternatives

This EA evaluates the alternatives for their effects within the action area. The environmental consequences of each alternative for 22 crab species under the FMP, crab bycatch in the groundfish fisheries, Endangered Species Act listed marine mammals and seabirds, and the economy, are assessed in Chapters 4 through 13 of this EA.

This EA tiers off of the Bering Sea Aleutian Islands Crab Fisheries Final Environmental Impact Statement (NMFS/NPFMC 2004) to focus the analysis on the issues ripe for decision and eliminate repetitive discussions. The Crab EIS provides the status of the environment and analyzes the impacts of the crab fisheries on the human environment, including habitat, the ecosystem, non-target species, safety,

and community impacts. The proposed action would establish overfishing definitions for the crab stocks under the FMP. This EA details the specific impacts of the proposed action.

Bristol Bay Red King Crab

Under Alternative 1, the B_{MSY} for Bristol Bay red king crab is 89.6 million pounds of total mature biomass and the MSST is 44.8 million pounds. The 2006 total mature biomass estimate is above B_{MSY} at 157.2 million pounds. Under Alternatives 2 and 3, the Bristol Bay red king crab estimate of B_{MSY} would be 76.6 million pounds of mature male biomass. For comparison, the 2006 estimate of mature male biomass for this stock is 65.5 million pounds. Thus, this stock status would be below its B_{MSY} under the Alternative 2 and 3, rather than above it as with Alternative 1.

Under Alternative 1, overfishing occurs when the TAC is above the estimated sustained yield (SY). The Bristol Bay red king crab TAC for the 2006/2007 fishery was 15.5 million pounds, which is below the 2006 SY of 31.5 million pounds. Under Alternatives 2 and 3, overfishing would be defined as any amount of fishing in excess of a prescribed maximum allowable rate as prescribed through the six tiers described in Chapter 2. The recommended OFL control rule for the Bristol Bay red king crab stock is $F_{35\%}$.

To evaluate the impacts of the alternatives on Bristol Bay red king crab, fourteen harvest strategy scenarios were investigated to predict the changes in stock abundance levels under various harvest rates. For Alternative 1, two harvest control rules were simulated to predict the possible effects of this alternative on stock biomass; the status quo harvest strategy and fishing at the status quo OFL control rule. For Alternative 2 and 3, an evaluation was made of control rules in Tiers 2 to 5.

The Alternative 2 and 3 harvest control rule scenarios produced higher retained yield and lower mean rebuilding time compared to the Alternative 1 scenarios. The status quo harvest strategy performed similarly or slightly worse than some of the Alternative 2 and 3 scenarios. Fishing under the Alternative 1 OFL control rule performed worst of all, with very low mean number of recruits, a higher overfished percentage, and no stock rebuilding.

Pribilof Islands Red King Crab

The Alternative 1 status determination criteria for Pribilof Island red king crab established a B_{MSY} of 6.6 million pounds of total mature biomass and an MSST of 3.3 million pounds. The 2006 total mature biomass estimate is above the B_{MSY} at 19.0 million pounds. Under Alternatives 2 and 3, this stock would be considered approaching an overfished condition because mature male biomass would be well below the B_{MSY} proxy. The stock would still be above its MSST proxy, and thus would not be considered overfished.

Other Red King Crab

For the remaining red king crab stocks, no status determination criteria were established under the Alternative 1. Under Alternatives 2 and 3, Dutch Harbor red king crab and Norton Sound red king crab stocks would be managed under Tier 4, while Adak red king crab would be managed under Tier 5. Status determination criteria are provided for Tier 4 stocks, while maximum fishing mortality rates would be prescribed by the Tiers 4 and 5 formulas. Under Alternative 2 and 3, the 2006 Norton Sound red king crab mature male biomass would be well above the B_{MSY} proxy and the MSST proxy.

Blue King Crab

Under Alternative 1, Pribilof Island blue king crab and Saint Matthew blue king crab have been declared overfished and are under rebuilding plans. The Alternative 1 status determination criteria for Pribilof Island blue king crab establish a B_{MSY} of 13.2 million pounds of total mature biomass and an MSST of 6.6 million pounds. The 2006 total mature biomass estimate is 1.6 million pounds, well below the MSST for this stock. For Saint Matthew blue king crab, a B_{MSY} of 22.0 million pounds was established with an MSST of 11.0 million pounds. The 2006 total mature biomass estimate for this stock is 11.2 million pounds, just slightly above the MSST.

Under Alternatives 2 and 3, both of these stocks would be managed as Tier 4 stocks. As such, proxy B_{MSY} values would be estimated but no MSST. Under Alternatives 2 and 3, the status of these blue king crab stocks would be similar to the status under Alternative 1.

Golden King Crab

Under Alternative 1, no estimates of B_{MSY} or MSST are made for any of the golden king crab stocks. Under Alternatives 2 and 3, two golden king crab stocks (Pribilof Islands, Aleutian Islands) are preliminarily recommended for Tier 5. Under Tier 5, the OFL would be set using a fishing mortality estimate based on average catch. For Aleutian Islands golden king crab, if average catch is used to establish an OFL for this stock, the OFL would be very close to the current total allowable catch. Saint Matthew golden king crab are recommended for placement in Tier 6 whereby no OFL would be determined for this stock.

Snow Crab

Under Alternative 1, snow crab has been declared overfished and is under a rebuilding plan. The Alternative 1 status determination criteria for snow crab establish a B_{MSY} of 921.6 million pounds of total mature biomass and an MSST of 460.8 million pounds. The 2006 total mature biomass estimate is 547.6 million pounds, above the MSST for this stock but below the B_{MSY} . While the estimated total mature biomass under Alternative 1 is above MSST, and hence no longer in an overfished condition, this stock remains under a rebuilding plan until the stock is above B_{MSY} for two consecutive years.

Under Alternatives 2 and 3, B_{MSY} for snow crab would be measured by mature male biomass. The long-term B_{MSY} estimate for the stock would be 413.4 million pounds of mature male biomass. An MSST for this stock would be 206.7 million pounds. The 2006 mature male biomass estimate is 211 million pounds and just above this MSST.

Under Alternative 1, overfishing occurs when the TAC is above the estimated SY. The snow crab TAC for the 2006/2007 fishery was 36.6 million pounds, which is below the 2006 SY of 164.5 million pounds. Under Alternatives 2 and 3, overfishing would be defined as any amount of fishing in excess of a prescribed maximum allowable rate as prescribed through the six tiers described in Chapter 2. The recommended OFL control rule for the snow crab stock is $F_{35\%}$.

To evaluate the impacts of the alternatives on snow crab, thirteen harvest strategy scenarios were investigated to predict the changes in stock abundance levels under various harvest rates. For Alternative 1, two harvest control rules were simulated to predict the possible effects of this alternative on stock biomass; the status quo harvest strategy, and fishing at the Alternative 1 OFL control rule. For Alternatives 2 and 3, an evaluation was made of the control rules in Tiers 2 to 5.

The status quo harvest strategy control rule and the $F_{35\%}$ control rule produced similar simulation results for rebuilding times, and short-term and long-term yields. Fishing at the Alternative 1 OFL control rule did not rebuild the stock.

Tanner Crab

Under Alternative 1, Tanner crab has been declared overfished and is under a rebuilding plan. The Alternative 1 status determination criteria for eastern Bering Sea Tanner crab establish a B_{MSY} of 189.6 million pounds of total mature biomass and an MSST of 94.8 million pounds. The 2006 total mature biomass estimate is 253.3 million pounds, above the B_{MSY} for this stock. While the total mature biomass under Alternative 1 estimate the stock above its B_{MSY} , this stock remains under a rebuilding plan until the stock is rebuilt. In order to be considered rebuilt, this stock must be above B_{MSY} two consecutive years.

Under the Alternative 2 and 3 status determination criteria, B_{MSY} for Tanner crab would be measured in mature male biomass. The long-term B_{MSY} estimate for the stock would be 67.4 million pounds of mature male biomass, with an MSST of 33.7 million pounds. For comparison, the 2006 estimate of Tanner crab mature male biomass is 62.8 million pounds. Therefore, under Alternatives 2 and 3, this stock would be above the MSST but below its B_{MSY} in 2006.

Under Alternative 1, overfishing occurs when the TAC is above the estimated SY. The Tanner crab TAC for the 2006/2007 fishery was approximately 3 million pounds, which is below the 2006 SY of 76.1 million pounds. Under Alternatives 2 and 3, overfishing would be defined as any amount of fishing in excess of a prescribed maximum allowable rate as prescribed through the six tiers described in Chapter 2. Overfishing would be evaluated by comparison of actual harvest rates and the recommended control rules for this stock. Under Alternatives 2 and 3, $F_{35\%}$ would be the recommended OFL control rule for Tanner crab. Harvest rates in recent years have been well below this control rule.

To evaluate the impacts of the alternatives on Tanner crab, twelve harvest strategy scenarios were investigated to predict the changes in stock abundance levels under various harvest rates. For Alternative 1, two harvest control rules were simulated to predict the possible effects of this alternative on stock biomass; the status quo harvest strategy and fishing at the Alternative 1 OFL control rule. For Alternatives 2 and 3, an evaluation was made of control rules under Tiers 2 to 4.

Alternatives 2 and 3 simulations with an $F_{35\%}$ produced higher retained short-term and long-term yields. The status quo harvest strategy was satisfactory, with performance similar to the Alternative 2 and 3 scenarios. Fishing under the Alternative 1 OFL control rule performed worst of all, with a very low mean number of recruits, higher overfished percentage, and much lower long-term biomass.

Under Alternative 1, no estimates of B_{MSY} or MSST are made for the other Tanner crab stocks. Under Alternative 2 and 3, the eastern Aleutian Islands Tanner crab stock would be under Tier 4. For this analysis, average biomass from 1999 to 2005 was used as a B_{MSY} proxy for eastern Aleutian Islands Tanner crab. Stock status would be below its B_{MSY} proxy but above MSST proxy. Historical comparison of stock status shows that the stock was below the MSST proxy in all years prior to 2000, with the exception of 1999. Western Aleutian Islands Tanner crab would be under Tier 6 due to lack of available information and no OFL would be determined for this stock.

Other Crab Stocks

Under Alternative 1, no B_{MSY} or MSST was specified for these stocks and the maximum fishing mortality threshold was based on the MSY control rule of 0.3 for Tanner crabs and 0.2 for king crabs.

Under Alternatives 2 and 3, these stocks would all be under Tier 5, with an OFL calculated based upon average catch or other means depending on information availability, or under Tier 6, with no OFL determination. No additional status determination criteria are currently estimated for these stocks nor proposed under the revised definitions.

Incidental Catch Limits

Chapter 10 analyzes the effects of the alternatives on crab caught incidentally in the BSAI groundfish fisheries. Bycatch limits are established in BSAI groundfish fisheries for red king crab, Tanner crab, and snow crab. Once these limits are exceeded, the specified area closures are triggered for the fishery. Crab species are also incidentally caught in the Alaskan scallop fishery and bycatch limits by species are established for this fishery.

Under Alternatives 2 and 3, OFLs would restrict current harvest levels for crab and it is possible that this would likewise affect the stair-step regulations implementing the bycatch limits. Bycatch limits, however, are based on overall abundance, not on harvest amounts. If abundance is projected to increase over time under the new OFLs, then the amount allocated for bycatch would increase. If the abundance is projected to decrease under the alternatives, the bycatch allocation would decrease.

Endangered Species Act Listed Species

Chapter 11 analyzes the effects of the alternatives on species currently listed under the Endangered Species Act (ESA). Twenty-one species occurring in the action area are currently listed as endangered, threatened, or candidate species under the ESA. The group includes seven species of great whales, one pinniped, four Pacific salmon, three seabirds, one albatross, four sea turtles, and sea otters.

None of the alternatives would have direct effects on ESA-listed species or critical habitat. If NMFS declared a stock overfished under any of the alternatives, then the Council would take action to develop a rebuilding plan for the stock. If overfishing was predicted to occur, the State would reduce the TAC to below the OFL. Both of these actions would reduce any adverse effects of the crab fisheries on ESA-listed species and critical habitat by reducing or eliminating fishing for the crab stock.

Economic and Social Effects

Chapter 12 analyzes the economic and social effects of the alternatives. The economic and social impacts are largely qualitative and deal with impacts on persons and on communities. The economic impacts of Alternatives 2 and 3 depend on the extent to which those control rules constrain the status quo harvest strategies used in establishing TACs. The short-term simulation projections suggest that TACs under Alternatives 2 and 3 would be less than under Alternative 1. The extent of this difference depends on the degree to which actual TACs are set below the proposed OFLs. Under the Alternative 1, the MSY control rule for these fisheries has not been constraining. However, the proposed OFLs for Alternatives 2 and 3 would be lower than those under Alternative 1, so TACs would likely have to be set lower to adjust for the lower OFLs. In general, any TAC decline is likely to contribute to reduce revenues and profits to harvesters and processors in the fishery and could contribute to fleet contraction. However, in the long-term, Alternative 2 and 3 OFLs could result in higher retained yields and lower rebuilding times for these fisheries, which would likely contribute to increased gross revenues to harvesters and processors in the future and could contribute to some fleet expansion.

Cumulative Effects

Chapter 13 analyzes the cumulative effects of the alternatives. The cumulative effects of crab fishing are analyzed in the Crab EIS, including the interactive effects of any past, present, and reasonable foreseeable future external actions. That analysis is incorporated by reference. The Crab EIS concludes that for the majority of the components of the environment analyzed, the cumulative effects of the crab fisheries are insignificant based on the best available scientific information. For some environmental components analyzed, the Crab EIS determined the cumulative effects were unknown, because of a lack of sufficient information on the cumulative condition or the inability to predict effects of external future actions. No new significant information is available that would change these determinations in the Crab EIS. This action would not result in additional impacts beyond those considered in the Crab EIS and is not anticipated to change any of the cumulative effects conclusions.

National Standards and Fishery Impact Statement

Chapter 14 provides the ten Magnuson-Stevens Act National Standards, and a brief discussion of the consistency of the proposed alternatives with each of those National Standards, and the fisheries impact statement.

Crab Plan Team Report

The Crab Plan Team convened a special one day meeting from November 8th, 2006, at the Alaska Fisheries Science Center in Seattle WA.

Members present included the following:

Forrest Bowers (ADF&G-Dutch Harbor), Chair
Diana Stram (NPFMC)
Doug Pengilly (ADF&G-Kodiak)
Gretchen Harrington (NMFS-Juneau)
Wayne Donaldson (ADF&G-Kodiak)
Jack Turnock (NMFS/AFSC-Seattle)
Joshua Greenberg (UAF) participating by phone
Shareef Siddeek (ADF&G-Juneau)
Herman Savikko (ADF&G-Juneau)
Lou Rugolo (NMFS/AFSC-Kodiak)

Ginny Eckert (UAF/UAS) was absent.

Members of the public (and state and agency staff) present for all or part of the meeting included: Jack Tagart, Steve Hughes, Denby Lloyd (ADF&G), Doug Woodby (ADF&G), Jie Zheng (ADF&G), Doug Wells, Arni Thomson, Anne Hollowed (AFSC), Russ Nelson (AFSC), Erik Olsen

Introduction

The agenda for the meeting (attached) was approved with no changes. Minutes from the September CPT meeting were approved as modified and will be posted on the Council website.

Diana Stram reviewed the purpose of the meeting with respect to reviewing and providing comment from the CPT on the draft Crab Overfishing Definitions EA (proposed amendment 24 to the BSAI king and Tanner Crab FMP). Commentary from the CPT at this meeting is intended to include both content of the analysis as well as the appropriate timing (December or February) for initial review by the Council. A revised initial review draft for the December meeting would need to be finalized by November 20th in order to be sent to the SSC. There would only be approximately one week to revise the current document for initial review. It was the team's intent per the CPT agenda to make a recommendation at the close of the meeting on the appropriate timing for the analysis.

Overfishing definitions EA overview

Diana Stram provided an overview of the alternatives in the analysis and the draft EA sections through chapter 2, and compiled a list of major and minor issues that need to be addressed for the analysis prior to initial review.

One section notably in need of further information is section 2.5.3 regarding the analysis of the impact in the change in availability of survey data for calculation of OFLs under alternatives 2 and 3.

The team discussed the issue of timing under alternative 3 and to what extent it would be possible to adjust the OFL after the survey data becomes available. It was discussed that the intent of alternative 3 was that OFLs were not adjusted again following the availability of survey data. This represents a major distinction between these two alternatives and the risk associated with establishing the OFL in the spring. Gretchen Harrington noted that, under the FMP, NMFS would not annually publish the OFLs and TACs in the *Federal Register*.

Jie Zheng reviewed some work he had done to help evaluate this distinction in survey availability by projecting biomass using survey data incorporated into his research model for St. Matthew blue king crab and Bristol Bay Red king crab. This document was provided to the plan team for the meeting with the intent to include it in the next draft of the EA. Results indicated that biomass estimated in the terminal year are an improvement over projecting ahead from the previous survey. However results are notably complicated by the confidence intervals from the survey and projections in individual years. The team commented that the retrospective analysis on the projections was useful and that it would be interesting to also see this applied to the terminal year estimates as well for comparison.

The team discussed that the St. Matthew blue king crab was a good example of a population where in the year of stock collapse, establishing an OFL without the most recent survey estimates would have masked the stock collapse and led to an even greater conservation concern. The stock was declared overfished with a decline that was drastic from 1998-1999.

The team discussed the relative risk of setting an OFL too high in the spring and allowing for the potential to have a very high TAC. It was noted that since TAC is based on recent survey biomass regardless the State would take measures to establish an appropriate TAC, however the risk exists under that alternative for a TAC to be set overly high when the most recent information would have indicated otherwise. Another risk is that of setting an inappropriately low OFL whereby recent data may indicate that the OFL should have been higher. This would result in a lower TAC and the necessity of foregoing the catch in that year.

The team discussed some of the pros and cons of the alternatives included in the analysis. Alternative 3 allows for more time for model configuration using survey data, has the benefit of fitting into the Council schedule for deliberative decision-making on OFLs, but carries the risk that there is the possibility of conservation risk in establishing an OFL that could be considered too high when the new data becomes available (regardless of the reality of TAC setting).

Other considerations that were noted (and should be mentioned in the analysis) included market considerations in emergency situations (if OFL high and then TAC established much lower), and the fact that there is limited peer review of in-year data if the current year survey data is utilized.

If the Council adopts OFLs in June, the intent is that these cannot be changed, so the fundamental distinction policy-wise would be whether or not the Council and SSC want to adopt the actual OFL levels, understanding the potential risks.

The team discussed a recommended buffer between OFL and TAC. Additional information needs to be added to the analysis to call attention to the potential need to re-evaluate the State harvest strategy given that these harvest strategies were not formulated in conjunction with the OFL control rules. Thus, there is no automatic buffer between OFL and TAC. Simulations included in the analysis estimated a 75%OFL. This was included for demonstration purposes as recommended from the CIE review as a buffer.

Diana reviewed the current information contained in the economic analysis with a list of additional information that was still necessary to complete this section. This includes short-term catch projections for Tanner crab stocks and a discussion of the impacts of tier 4 and 5 stocks.

AFSC certification

Anne Hollowed reviewed the process of AFSC certification for overfishing definitions. Grant Thompson is usually tasked with reviewing OFL formulation and consistency with the Magnuson-Stevens Act. Grant has been consulted continuously with this crab OFL progress in order to ensure that any changes are consistent with Magnuson-Stevens. She noted that in the past there have been problems with MSSTs on previous iterations, but that the control rule as formulated for crab should not have this problem as there is an actual beta level where directed fishing goes to zero. The proposed sloping control rule allows for automatic rebuilding. The process of AFSC certification will occur after final Council action on this item. Consultation with Grant to ensure consistency will continue as the analysis is revised.

Overview of analysis/CPT comments on analysis

The team discussed proposed work group changes to the tier system and to what extent it is possible to estimate biomass proxies as listed for tier 4 and whether or not to include the sloping control rule in this tier. Biomass estimates are available for these stocks, but not all of these survey estimates are annual.

The team discussed the need for the Bmsy proxy in this tier and that the methodology by which this is estimated for each stock should be included in the analysis. This discussion should include the justification for the years chosen to estimate this biomass proxy. Applicable years may vary by stock. The team noted that stocks that cannot meet this requirement should be moved to tier 5. The Norton Sound red king crab stock should be moved to tier 5.

Jie Zheng provided an overview of Tier 5 stocks. The only stock with an OFL recommended for analytical purposes is EBS grooved Tanner crab. The team discussed to what extent this represents an appropriate level for OFL for this stock. Catch and effort data are available for this stock. For some stocks despite the availability of some catch history, the catch is not representative of production potential of the stock. In the EBS grooved Tanner fishery, historical catch was sporadic with high catch rates prior to fishery crash, with yield dropping from a high of over a million. The estimated 248,000 probably represents an average over the 1990s. Forrest Bowers noted that interest in deepwater Tanner comes and goes with fluctuations in snow crab prices. The GHL remains capped at 200,000 lbs. The team commented that this OFL appears reasonable given that this stock has the most catch information available of all the tier 5 stocks.

The team discussed the possibility of creating a tier 6 for stocks with information insufficient to determine an OFL or open a fishery. The intent of the SSC-determination caveat in tier 5 was to cover this group of stocks, however there may be some utility in moving these stocks to a lower tier. The issue has to do with the implication that stocks in this tier (tier 5) have a fishery but not enough information to determine this. The benefits offered by the creation of a separate tier 6 would be for stocks where it was clear that there was no fishery. Doug Pengilly suggested a separation for stocks in tier 5 based on having enough information for an established fishery to include under rationalization where tier 6 stocks may only have a permit only fishery or no established historical fishery at all.

The team discussed the determination of “overfishing”. The team reviewed the difference between groundfish management and what the regulations entail when OFLs are exceeded for groundfish fisheries and what would occur when OFLs are exceeded for crab fisheries. The team questioned to what extent the overfishing determination should include all removals or just retained catch in the directed crab fisheries. It was determined that while the actual comparison on an annual basis will be the calculated Fofl compared with the retained catch in the directed fishery, that this does in fact take into account all removals. The model simulations to determine total catch assume a specified amount of non-retained catch in both directed crab fisheries as well as incidental catch in other non-crab (e.g. groundfish and scallop) fisheries, i.e., the maximum fishing mortality rate (or proxy thereof) includes all removals in the simulations used to estimate accurate control rules. Therefore, the comparison of retained catch is sufficient to comply with the accurate overfishing determination. The actual bycatch in other fisheries will be considered against the model assumptions on an annual basis and if actual bycatch exceeds model assumptions then consideration will be given to changing this parameter the following year for OFL determination. The analysis will be clarified to more accurately represent the determination of overfishing and how these considerations are taken into account. The team also noted that following a determination of overfishing, the Council would analyze all sources of mortality in developing the rebuilding plan for that fishery.

Doug Pengilly noted that this should also be characterized in the discussion of the comparison of alternatives given that consideration of total removals was always a lingering problem in the overfishing rate used under alternative 1. Now, under alternatives 2 or 3, all mortality can now be explicitly included.

Wayne Donaldson noted that there may be implementation problems with making staff available on an annual basis to complete the assessments necessary under alternatives 2 and 3.

Doug Pengilly questioned why the February 15th date was chosen for calculation of mature male biomass. Jack explained that this date was chosen in order for all estimates to show MMB at time of mating (which is projected forward from survey time to the fishery time period). The team noted that the analysis needs to include an explanation of this. This may also assist in the consideration of “approaching an overfished condition” which has not yet been taken into consideration in this analysis.

Further comments to be included in the analysis include:

- Comparison table of alternatives.
- Specification of OY under alternatives 2 and 3.
- Need to include information about how the proposed OFLs take into consideration ecological factors.

The team discussed consideration of tier 4 stocks. Jie Zheng presented a discussion of F rates proposed for various gamma values for the tier 4 consideration. The team noted that if the sloping control rule is to be used for these stocks then reference biomass estimates are necessary. Average biomass for the model could be equivalent to average survey biomass estimates specified for a stock-specific time period. Anne Hollowed suggested looking at the language in the tier 6 calculation for groundfish for specifying the time frame for average biomass to estimate proxy Bmsy value.

Siddeek reviewed the projections for Tier 3 stocks (Bristol Bay red king crab and Tanner crab). Team members questioned the methodology for projecting ahead for the estimate of current biomass, noting that this could mean that it would be theoretically possible that the projected

ahead biomass is below MSST and with $OFL > 0$ then the stock would be considered overfished. However, this would be the projection made prior to the fishery occurring, thus it would still be possible to set the directed fishing mortality to 0 to potentially avoid going below MSST and avoid the necessity of a rebuilding plan. This follows up on the need to evaluate "approaching an overfished condition".

The team discussed the timing of stock status determination. The analysis needs to clarify what is the appropriate time period for stock status determination, particularly as to whether it should be prior to the fishery, in absence of the fishery or after the fishery.

The team discussed handling mortality and how it is applied. Siddeek noted that it is applied to the stock component selected by the discard selectivity curve and is usually but not exclusively applied to sublegal crabs.

Jack Turnock reviewed the materials included for snow crab simulations. Comments from the public indicated that handling mortality should not be consistent by size (eg smaller crabs should have higher handling mortality than larger crabs) but the mortality rate is currently considered constant in the modeling framework.

Siddeek reviewed the simulations currently included for Tanner crab. The short-term 30yr scenarios (for 50% Bmsy and 100% Bmsy) and long term (50%Bmsy) simulations will be included in the final draft for the EA. Short term catch scenarios through 2012 will also be forthcoming for incorporation into analysis.

The team noted that the analysis should clearly spell out what the criteria are which are used to specify which scenario are the best ones (eg why F35 chosen under the 100th year biomass).

This completed the review of the draft analysis to date.

The Plan Team continued with the previous discussion of pros and cons of alternatives. Ideally it would be the intention of the team to recommend that CPT choice of preferred alternative prior to Council review.

Benefits noted for alternative 1:

Familiar, easily applied, fits within short timeframe for analysis, harvest strategy consistent with current system, easily understandable to general public.

Drawbacks of alternative 1:

Set of years utilized may not be representative of the stocks productivity: Fundamental problem as to whether the "average biomass" is representative of Bmsy. Criteria has not been applied appropriately: overfishing levels ignore the reality of the fishery i.e., inconsistent with established size limits and a male only fishery. Overfishing calculation is also problematic in that ignores bycatch, handling mortality, and hence does not include all components of total fishery removals.

The team noted that these noted inconsistencies with alternative 1 must be explicitly included in the analysis. It is also necessary to include additional information as to why the current estimate of Bmsy is more appropriate to the biology and how the revised modeling framework allows for improved estimation of Bmsy. Further discussion should also be included as to how alternative 1 could be risk prone theoretically regardless of the State's TAC-setting policy (which has set TACs/GHLs below a risk prone threshold).

Wayne Donaldson noted that the only current harvest strategy that does not directly reference the current overfishing definitions is the Bristol Bay red king crab harvest strategy. This should also be noted in the discussion of alternatives as further evidence why harvest strategies (and rebuilding plans) may need to be revised under the new overfishing definitions.

The team noted some potential drawbacks of utilizing the new tier system under alternatives 2 and 3, including that it is more difficult to understand and to relate how current survey abundance estimates fit with estimates of OFL levels. Implementation of this new system may prove problematic as both alternatives 2 and 3 assume that adequate staff are available for annually assessing these stocks. The team noted that there needs to be additional work done on the adequate transparency of these models so that can be turned over to additional staff as necessary in case of staffing changes.

Some benefits of alternatives 2 and 3 include flexibility, the use of best scientific information, and the application to the exploitable portion of the stock.

The team discussed the timing of the Council review and the potential for implementation for 2007. If the Council chose alternative 3 (OFLs established in fall), then with Final action in February it would be possible to obtain SOC approval by August. In that scenario, the OFL review process could begin prior to SOC approval of the amendment. However if the Council chose alternative 2 (OFLs established in June) then it would not be possible to obtain SOC approval in time to implement the amendment.

The CPT unanimously feels that additional time is necessary to incorporate the analyses and information necessary for improving the document prior to initial review. This would mean that the document would be revised with the intent to have initial review by the Council in February, with final action for April. The CPT recommends that the initial review draft be revised by the beginning of January; with a CPT meeting or teleconference scheduled in early January to review the revised draft. The purpose of this meeting would be to review revisions consistent with the needs noted during this CPT meeting, to recommend to the Council a CPT preferred alternative, and to discuss implementation plans. This initial review draft should go to the SSC by January 15th. A teleconference should be scheduled for the first week in January.

The meeting adjourned at 5:00pm.

NPFMC CRAB PLAN TEAM
OFD analysis review plan team meeting

DRAFT AGENDA

NOVEMBER 8, 2006

Traynor Room, AFSC, Seattle

Wednesday Nov. 8

08:00	Introduction	Introductions Review and approve agenda Approve minutes from September meeting Review purpose of CPT review and timeline for comments for incorporation into analysis (initial and final review) <i>Diana</i>
08:30	Overfishing definitions EA overview	Overview of written analysis – <i>Lou, Jack, Siddeek, Jie, Diana and Gretchen</i> Overview of Economic analysis (to be included in Init Review draft) - <i>Jon McCracken</i>
10:00	AFSC certification process for OFD	Review of necessary elements for certifying OFDs by AFSC - <i>AFSC representative</i>
10:30	Break	
10:45	CPT review of analysis	CPT commentary on analysis (section by section review and comment)
12:30	Lunch	
13:30	CPT review of analysis	CPT commentary on analysis (continued)
15:00	Break	
15:15	CPT review of analysis	CPT discussion on submission of analysis for initial review Summary of main comments for incorporation into analysis
17:00	Adjourn	